Air Source Heat Pump
Installation and Maintenance Manual

Model Numbers:
RC090MHXEA
RC160MHXEA

January 2013

Smart Heating Approved Installer

The outdoor unit (boiler)

Deciding on Where to Install the Outdoor Unit

The outdoor unit must not be placed on its side or upside down, as the compressor lubrication oil will run into the cooling circuit and seriously damage the unit.

Choose a location where the noise of the Air to Water Heat Pump when running and the discharged air do not disturb any neighbours.

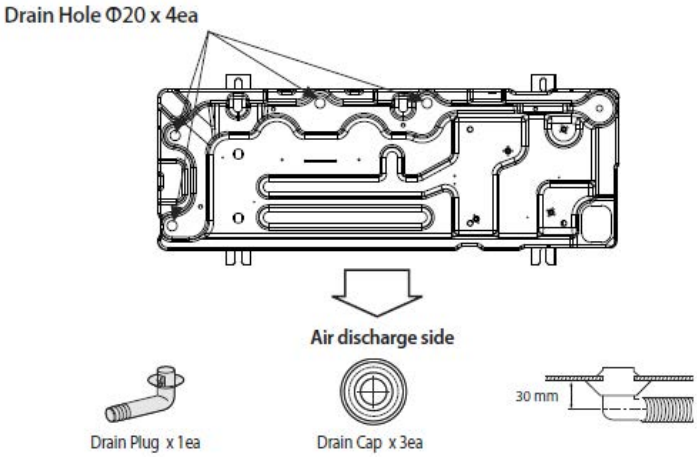
Install the outdoor unit on a flat, stable surface with plenty of drainage, gravel or grass is ideal; make sure the base can support its weight

Position the outdoor unit so that the air flows into an open area.

Place the outdoor unit where there are no plants and animals

When installing the outdoor unit near sea make sure it is not directly exposed to sea breeze. The golden rule is, if you can see the sea from the position of the outdoor unit you need to apply Blygold or equivalent anti-corrosion coating on the whole unit.

The unit needs to be securely mounted at least 100mm off the ground on rubber feet or wall brackets, the unit must be bolted down for security using 10mm bolts and Zebedee bolts.

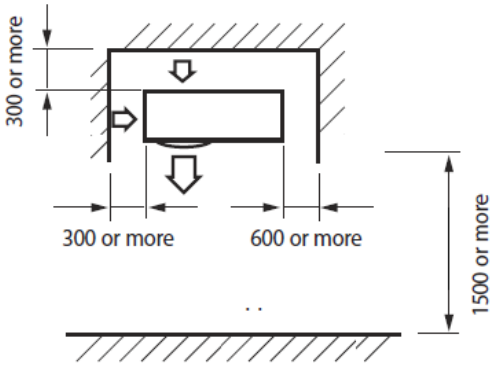


The unit must have adequate drainage away from the unit; it can produce up to 6 L / hour.

There is a drainage kit included which we recommend you don't use, its best to let the unit drain into the ground. The drain holes in the unit are clearly shown, if a drip tray is used it must be 25mm longer and wider than the base of the unit to catch all the drips.

Dimensions:

Size 16 - 1420mm (h) 940mm (w) 330mm (d) 103kg
Size 9 - 998mm (h) 940mm (w) 330mm (d) 75kg

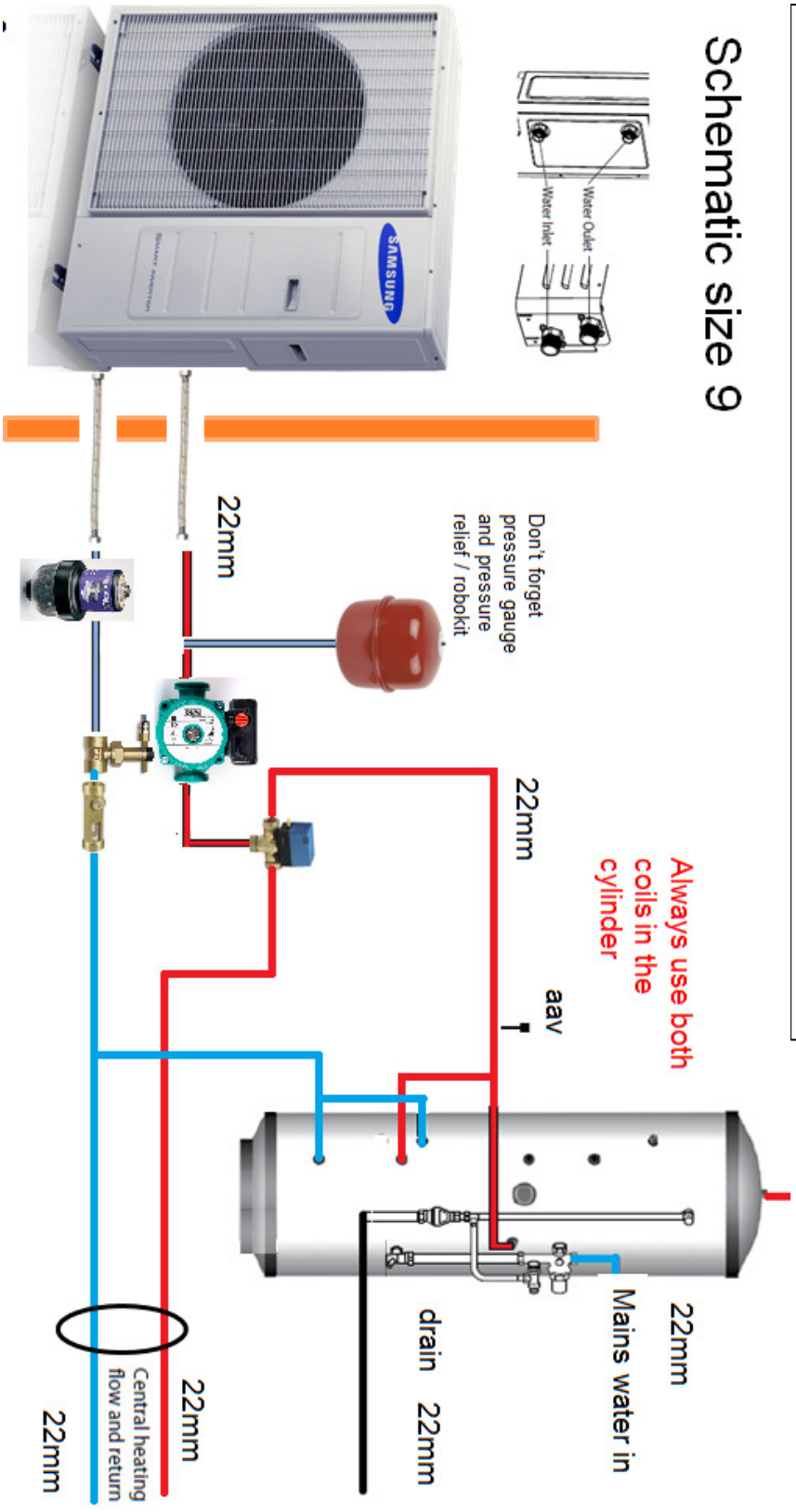


The space around the unit is very important, allow: 150mm to the left hand side (facing the front of the unit), 600mm to the right of the unit, 300mm to the rear of the unit and 1500mm to the front of the unit.

The unit will not benefit from being mounted on the North or South of the building any aspect is fine, you should avoid very exposed positions to avoid wind blowing into the back or front of the unit and very sheltered positions.
An exposed location may increase difficulty for full unit defrost.

The Control Box

When the heat pump is delivered it comes with a control box which also contains the flow switch. Install the control unit indoors as it's not waterproof.
It needs to be sited within 15m of the hot water cylinder, 100m of the outdoor unit and as near as possible to the pump, flow switch and any zone valves.
The box is 323mm wide, 339mm high, 131mm deep



The 9kW unit has 1 inch BSP male connections; these should be connected to flexi hoses.

To maintain flow rate we recommend 22mm pipework is used with this machine.

All Pipework including the flexis need to be insulated with 23mm lagging

It is essential to connect an expansion vessel, pressure gauge, pressure relief valve, filling loop, magnetic filter/strainer and automatic bypass.

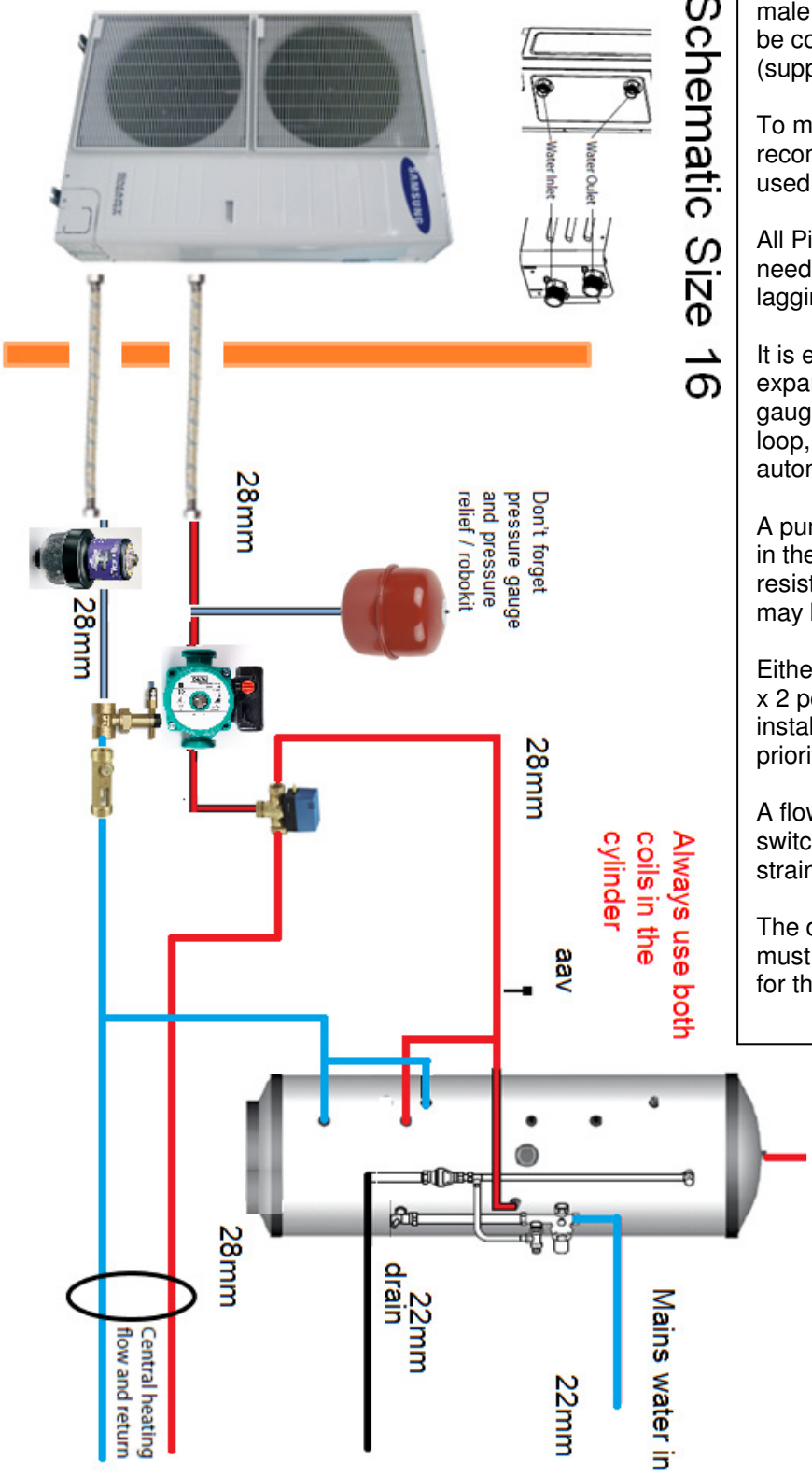
A pump will be required, normally in the flow. Dependant on system resistance some times, 2 pumps may be required.

Either a 3 port diverter valve or 2 x 2 port valves need to be installed for domestic hot water prioritisation.

A flow meter / setter and flow switch should be installed and a strainer in the return.

The domestic hot water cylinder must be manufactured specifically for the heat pump.

Schematic Size 16



The 16 kW unit has 1 inch BSP male connections, these should be connected to flexi hoses (supplied).

To maintain flow rate we recommend 28mm pipework is used with this machine.

All Pipework including the flexis need to be insulated with 23mm lagging

It is essential to connect an expansion vessel, pressure gauge, pressure relief valve, filling loop, magnetic filter/strainer and automatic bypass.

A pump will be required, normally in the flow. Dependant on system resistance some times, 2 pumps may be required.

Either a 3 port diverter valve or 2 x 2 port valves need to be installed for domestic hot water prioritisation.

A flow meter / setter and flow switch should be installed and a strainer in the return.

The domestic hot water cylinder must be manufactured specifically for the heat pump.

Other components you need to supply and fit:

An expansion vessel, pressure gauge, pressure relief valve and filling loop
Most heating engineers use a robokit with the appropriate size expansion vessel, this is sized exactly the same way as when using a boiler.

Pump
Your pump needs to supply 20l/min for the 9kW and 30l/min for the 16kW unit. The static resistance through the unit is 10kPa for the 9kW and 15kPa for the 16kW unit. The flow meter has a resistance of around 5kPa
The cylinders (Gledhill) have a static resistance of 5kPa for the heat pump coil and 19kPa for the solar coil.
The total resistance of the components will be approximately 39kPa for the size 9 unit and if the cylinder is piped using both coils and approximately 44kPa for the size 16 unit if using both coils.

Flow switch and flow meter
The unit requires 16L / min flow at all times, if you don't achieve this E911 error will occur to check this flow switch is installed. The flow switch comes with the control box.
The flow Switch MUST be installed in horizontal pipe with at least 150mm of straight pipe either side, connection is 1" female BSP. The wire is 2m long and needs to connect into the wiring station. This wire can be extended to suit. We recommend a flow meter is installed into the flow side of the flow switch as per the photo. Adaptors may be required to enable this join. The flow switch is not IP65 rated (weatherproof) and so must not be installed externally.

Diverter valves
If you require domestic hot water and heating, diverter valves are required, you need to supply these. You can use a three port or 2 port valves. The three ports must be of the diverter variety or wired as a diverter, see wiring.

Bypass Valve
You must install a bypass valve in the heating circuit as far away from the heat pump as possible. The bypass valve enables flow to be maintained as the tevs shut down at all times to prevent unit flow fault.

Buffer vessels
We don't normally use buffer vessels on Samsung EHS systems; as long as the water volume circulating is over 20 Litre. The inbuilt variable speed compressor means the unit can operate without a buffer.
1m of 22mm pipe holds 380 ml of water, if you add the volume in the unit and components and make sure you put the bypass valve more than 25m from the heat pump your system volume will be adequate. When utilizing multiple units, a buffer or low loss header is required to hydraulically join the units.

Magnetic Filter
A magnetic filter with strainer must be installed in the return to the unit. A magnetic filter ensures that debris/foreign materials do not cause restrictions within the pipework / system.

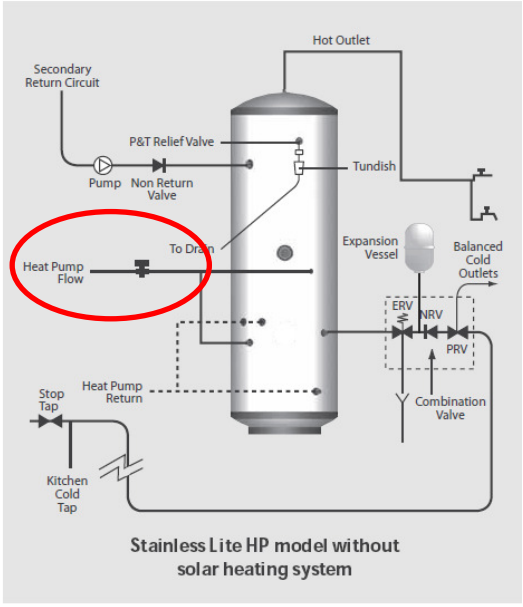
Glycol
A propylene glycol mixture must be utilized to prevent freezing of the water within the system. It is important that the glycol concentration is adequate to protect the unit in case of power failure in very cold conditions. If the unit freezes up there will be no warranty. Manufacturer dependant, a mix of around 25% should suffice.

The Cylinder

The cylinder needs to be installed less than 15m from the control box to allow for the temperature sensor cable. Note the size and weight of the cylinder. Full installation instructions are included with the cylinder.

We only recommend using Gledhill heat pump stainless steel cylinders however other cylinders can be used IF the coil area is more than 2.5m^2. Smaller coils are not acceptable and cannot be used. Please do not attempt to utilize a standard central heating, non-heat pump optimized cylinder. Cylinders can be pressurised or open vented.

When using Gledhill cylinders both the heat pump (top) coil and the solar (bottom) coil should be used. If no solar thermal is being used the heat pump should connect to both coils as per the recommendations in the Gledhill installation instructions, and oversized by 30% to take into account 0kW input from solar thermal in winter.

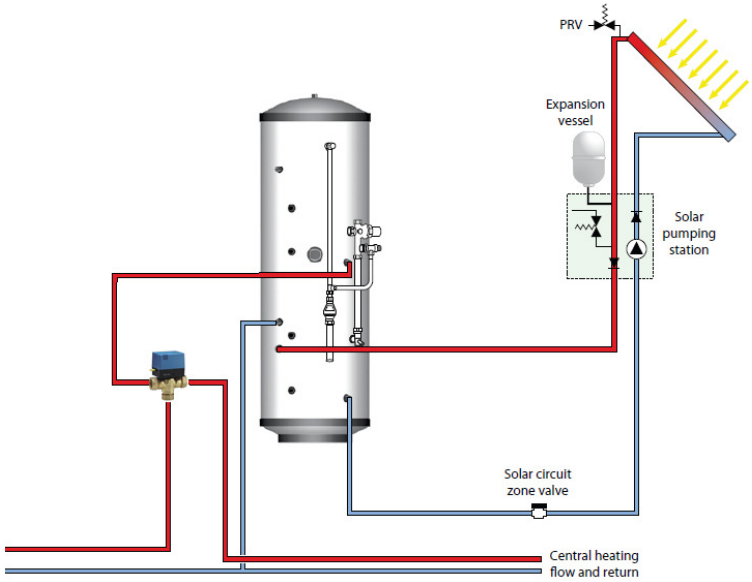


Stainless Lite HP model without solar heating system

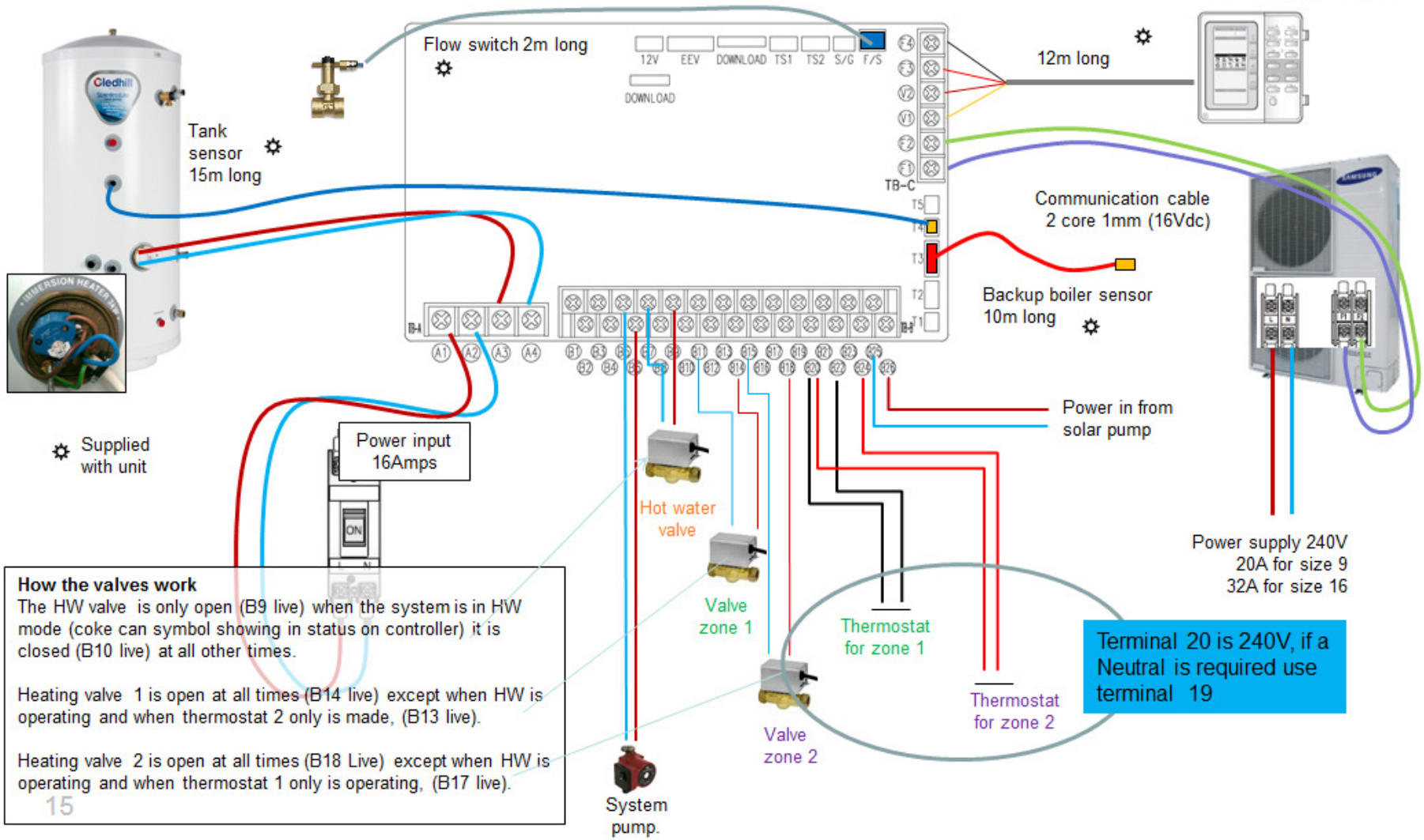
G3

The G3 regulations state in section 3.13a “for all indirect heat sources an overheat cut out to disconnect the supply to the stored vessel in the event of the stored water overheating must be employed so that the temperature of the stored water does not exceed 100C”.
For this reason the heat pump cylinder comes with a 2 port valve and tank stat. The valve can be installed in the flow as per the diagram.
However as the refrigerant used in the Samsung EHS is R410A it is not able to physically heat above its critical temperature of 72.8C. Many heating engineers do not install this valve.

If solar thermal is used it needs to be connected to the bottom coil of the cylinder as shown.



Wiring Diagram Mono with 2 port valves



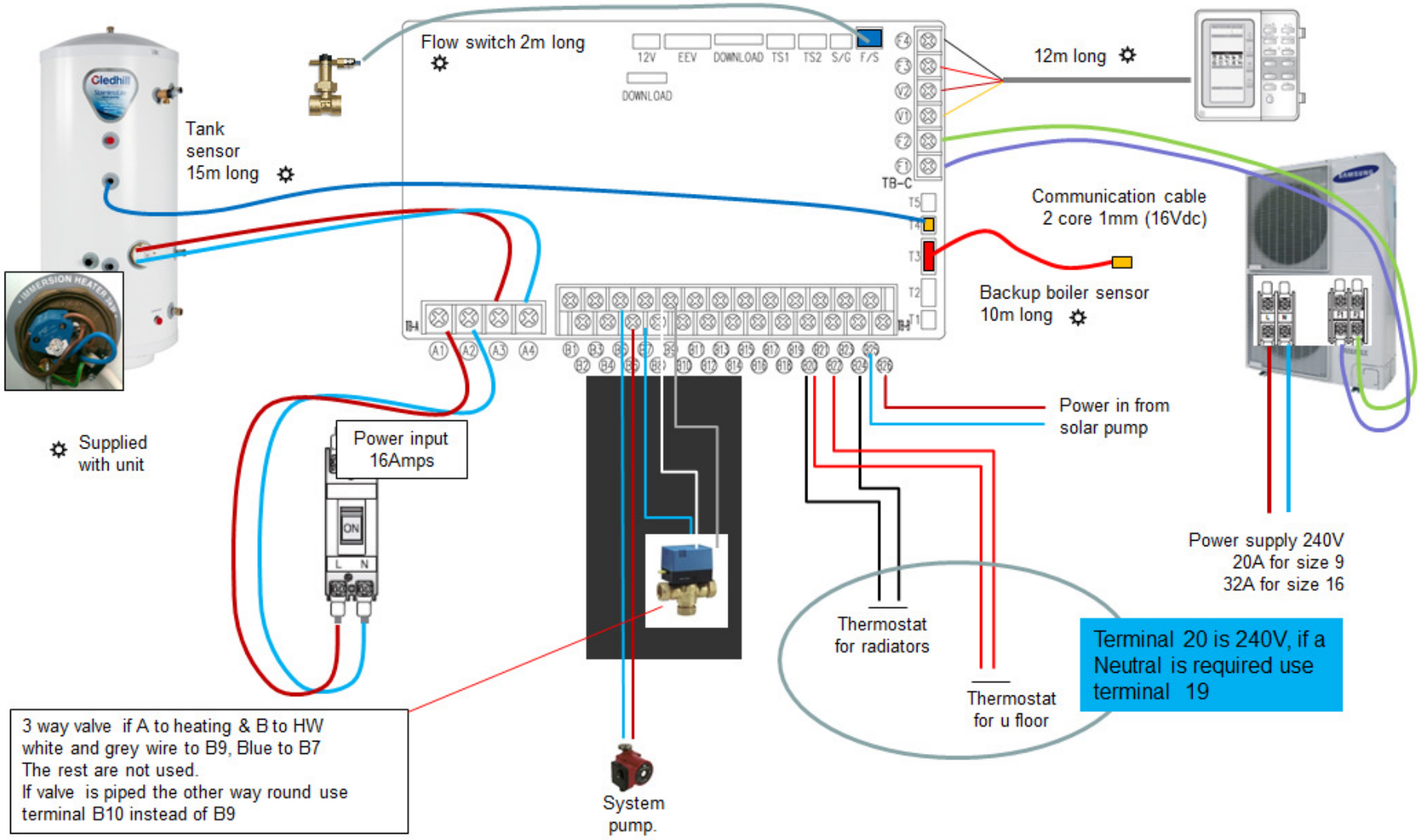
How the valves work

The HW valve is only open (B9 live) when the system is in HW mode (coke can symbol showing in status on controller) it is closed (B10 live) at all other times.

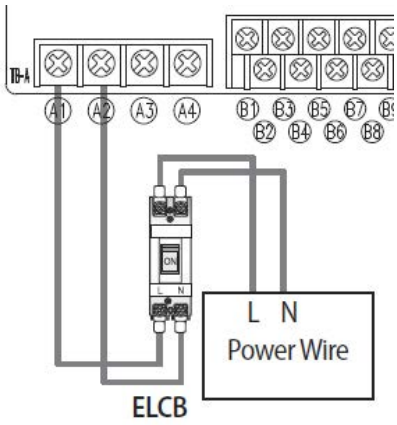
Heating valve 1 is open at all times (B14 live) except when HW is operating and when thermostat 2 only is made, (B13 live).

Heating valve 2 is open at all times (B18 Live) except when HW is operating and when thermostat 1 only is operating, (B17 live).

Wiring Diagram Mono 3 port valve


Flow switch 2m long
12V EEV DOWNLOAD TS1 TS2 S/G F/S
DOWNLOAD
12m long
Tank sensor 15m long
TB-C
Communication cable 2 core 1mm (16Vdc)
Backup boiler sensor 10m long
Power in from solar pump
Power input 16Amps
ON
L N
Supplied with unit
Power supply 240V 20A for size 9 32A for size 16
Thermostat for radiators
Thermostat for u floor
Terminal 20 is 240V, if a Neutral is required use terminal 19
3 way valve if A to heating & B to HW
white and grey wire to B9, Blue to B7
The rest are not used.
If valve is piped the other way round use terminal B10 instead of B9
System pump.

Wiring and Power Supply Information



Power
The EHS system needs 2 power supplies:
One connects into the outdoor unit, 20 Amp for the 9kW and 32 Amp for the size 16
The one for the control box is 16 Amp and wires into the top of the breaker (mcb) in the box

Immersion Heater
The immersion heater is connected into the control box terminals A3 Neutral and A4 Live, The control box controls the operation of the immersion heater. If a fused spur is used it must be labelled as switching it off will cause an error.

Communication cable
This must be run from the outdoor unit to the control box. Use 2 core flex 0.5-1mm (its 16V ac)

Sensors
The **blue** **cylinder sensor** plugs into a socket T4 on the controller PCB and into the control sensor pocket in the tank in the top ½ of the cylinder. The tanks sensor needs to go 115mm into the tank; it must be clipped so it can't pull out.

The **red** **safety sensor** is to avoid over temperature, when using a backup boiler or heater, it clips to the outlet of the boiler. If no backup boiler is used the sensor is not needed. It plugs into a red socket T3 on the controller PCB

There is a **black wire** with a red plug in the box, this is not used.

Sensors cannot not be cut or extended. Keep sensors away from mains cables please

Diverter Valves
Using a three port valve
3 way valve if A to heating & B to HW wire both the white and grey wires to B9, Blue to B7 the rest are not used. If valve is piped the other way round use terminal B10 instead of B9

Using two port valves
2 port valve for Hot water, wire brown wire to B9 and Blue to B7, the rest are not used.
2 port valve for heating zone 1 wire B14 live and B11 Neutral
2 port valve for heating zone 2 wire B18 live and B17 Neutral

Thermostats/ timers and under floor heating manifolds
We recommend in all cases the heating should be controlled by an external field supplied room stat / setback stat time clock etc. or run signal from a boiler enable signal from under floor manifolds. If both rads and u floor are used in the same system the heat pump can be controlled to run at 2 different set points one for each thermostat terminal.
To run the unit with radiators make a connection from B20 – B24, to run the unit from under floor heating make the connection from B20 - B22.
B20 is permanently live 240V ac. B19 is Neutral
When the stat is made the unit will run, when the stat opens the unit will stop. Hot water production is not affected and will always take priority.

Pump
The circulation pump must be wired Live to B6 and neutral to B5, MAX pump power is 500 Watts. If two pumps are used wire them both to these terminals

Start Up Procedure

Disable the cooling function, with the power OFF, remove the front of the remote controller, slide it upwards, turn it over and flick dip switch 1 to on.
Cooling will no longer be available

On the outdoor unit remove the front cover, there are 2 screws at the top and one at the bottom, slide the cover down. Inside the unit is a baseplate heater which is not normally required in the UK, disconnect the bottom wire white plug and tuck it out the way

Filling and flushing:
The Building Regulations for England and Wales, Part L, 2006, now require a central heating system to be cleaned and inhibited chemically whenever the boiler is changed or any major works are carried out to the system.
When installing any Heat pump we insist on a thorough system flush prior to connection of the new equipment, your warranty will be at risk if a suitable flush is not carried out and the system becomes blocked during normal operation.

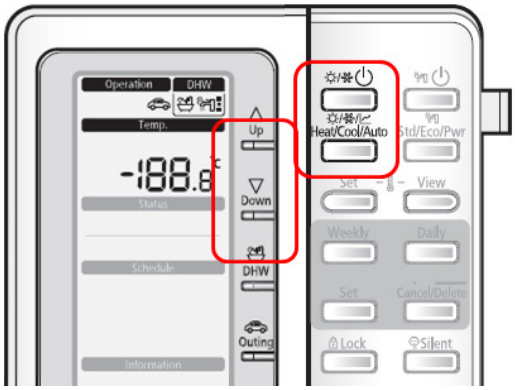
Power flushing
The recommended procedure is to power flush the system in both forward and reverse directions at 110% of the normal flow rate and to use a chemical flushing agent where required.

Filling
Using the power flusher fill the system with water and 25% Propylene Glycol to more than 1 bar. It's a good idea to note what the flow rate is through the system on the inline flow meter.
DON'T fill the unit with a hose expecting no air locks, the heat pump is prone to air locking at the outdoor unit, there is no auto air vent here.
Don't pour neat glycol into the unit; there is no chance of the heating pump moving neat glycol around the system.

Powering Up
Apply power to indoor control box first then the outdoor unit.
On the outdoor unit PCB the display will show 88 88, It will then say Ad meaning it's checking the addresses for you.
Soon it will say Ad then flashing numbers 00, 01 02 etc. Finally it will count up to 15. It has now finished addressing.

It will now flash a message like 00 00, dE, F0 etc.
This is it telling you the units it can see. The unit is now ready to run.
If the outdoor unit / remote controller show E201 there is a comms error. Check the comms cable F1 and F2.
In the middle of the control box PCB you will see two tiny leds one red and one orange flashing. The red one shows the signal leaving the PCB and the orange shows the signal coming back from the outdoor unit.

Starting it up in heating mode



If you have two port valves you should find the heating valves are open and the hot water valve closed. If you have a 3 port valve it should be open to heating mode.

Start the unit my Pressing heating on off button (top left inside the door) to start the unit, set the mode to heating (sun symbol)
Set the desired water temperature i.e. 50C using the up and down buttons.

Flow Switch and E911 READ THIS

When the pump is running a little house with a circle around it in the status window of the controller.
The unit wants to see 14 l / min flow to activate the flow switch, if there is not enough flow a E911 fault will show every 15 seconds
Check:
The flow rate on the flow meter it MUST be over 15l/min
The flow switch is connected to the PCB of the control box
The flow switch is round the right way you can turn the head, there is an arrow
All valves are open.
The pump speed is set at highest
There is no air in the system
There is water in the system
If none of this works you need a bigger pump or its air locked
To clear the fault stop and start the machine again with the button on the remote controller.
After 3 mins of pump operation the outdoor unit will start, don't rush the system it takes time

Caution in Cold weather

If the water in the system is below 10C the heat pump WILL NOT START.
Press the blue view button you can see 4 sensor readings, press it until the pump symbol shows (a circle round a house). This is the water temperature, if it's below 10C the unit will not start but the pump will run.

You must warm up the water to get the unit to run, the easiest way to do this is to add a tank and use the immersion to warm up the tank first, the warm water from the tank will preheat the heat pump and it will start to operate. For more info see page 13.

Set up the bypass valve with radiators

In heating mode check the unit is pushing water into the heating circuit only. Open the bypass valve fully, if you are not sure set it to its lowest setting. Now close every radiator on the system except one.
Using the flow meter check the flow rate is above 15/l to avoid E911 faults. Adjust the bypass valve to achieve this. If 911 occurs clear the fault switching the unit on and off at the remote.
The bypass is set now open the rads again.

Set up the bypass valve with U floor heating

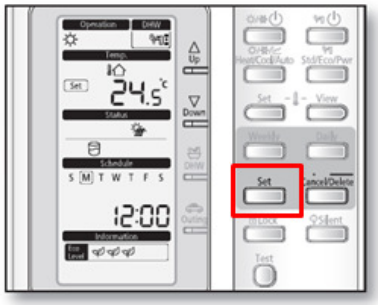
In heating mode check the unit is pushing water into the heating circuit only. Open the bypass valve fully, if you are not sure set it to its lowest setting. If 911 occurs clear the fault switching the unit on and off at the remote.
Using the flow meter check the flow rate is above 15/l to avoid E911 faults. Adjust the bypass valve to achieve this. If 911 occurs clear the fault by sending an off and then an on command to the unit. Reset the power to the ufloor manifold to do this.
The bypass is set now turn up the wall stats again.

What the symbols mean:

Status	Display	Function
Compressor On		This icon indicates that the compressor in the outdoor unit is running.
Back-up heater On		This icons indicate that the backup heater of the unit is operating, when there is a high demand for heating capacity. The backup heater provides extra heating capacity in case of low ambient outdoor temperature (high heating load).
Booster heater On		This icon indicates that the booster heater is active. The booster heater provides auxiliary heating for the domestic hot water tank. The booster heater is located in the domestic hot water tank. The icon is not used when the domestic hot water tank is not installed.
Solar thermal panel On		It indicates when the solar panel is powered on. DHW mode is stopping while solar panel is on in order to save your energy cost.
Back up boiler On		The Back up boiler shall start to work as soon as outdoor temperature reach to the targeted temperature. Users can adjust the temperature to allow the back up boiler work. The icon shall not be displayed without the Installation of the back up boiler.
Water pump On		This icon indicates that the circulation pump is active.
Domestic water On		This icon indicates when the domestic water heating mode is operating.
Defrost operation On		This icon indicates that the defrost mode is active.
Anti freezing operation On		The system automatically maintains the water temperature above a freezing point to prevent from freezing-fracture of piping system.
Sanitary operation On		This function disinfects the DHW tank by periodically heating the domestic water to a specific temperature.

Setting the correct time

1. Push the **Set** button for 3 seconds.
   - Mode : Normal operation.
   - When setting the time, you can only use **Up**△, **Down**▽, **Set**, **Cancel/Delete** button.
   - To cancel the setting, press the **Cancel/Delete** button.



2. Set the day by pressing **Up**△ or **Down**▽ button.

   The 'day' indicator will blink. Set the day and press **Set** button to save the setting.

3. Set the hour by pressing**Up**△ or **Down**▽ button.

   The 'hour' indicator will blink. Set the the hour and press **Set** button to save the setting.

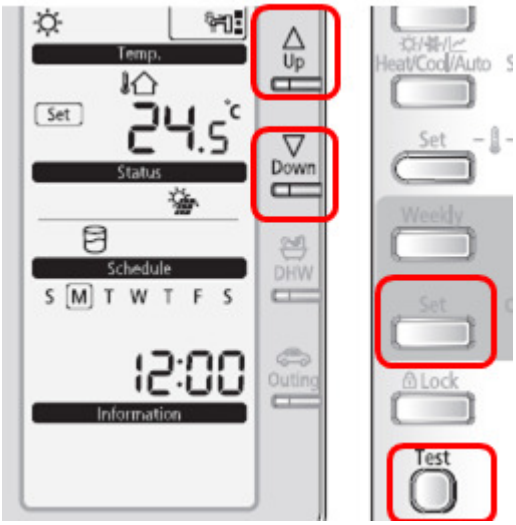
4. Set the minute by pressing **Up**△ or **Down**▽ button.

   The 'minute' indicator will blink. Set the minute and press **Set** button to save the setting.

   After setting the minute, the operation returns to normal.

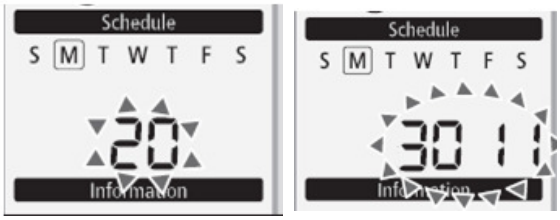
Telling the unit it has a tank.

When the unit is delivered it doesn't think there is a hot water cylinder tank installed. You have to tell the unit about the cylinder.

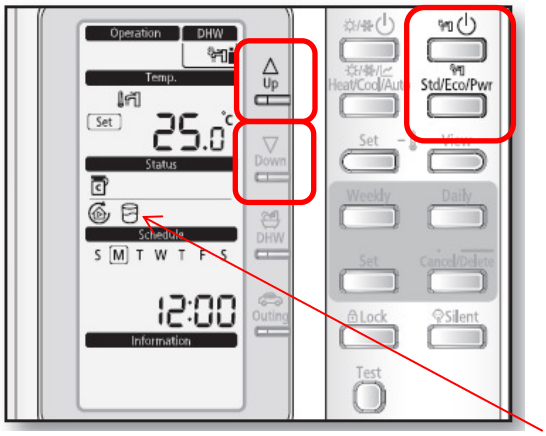


Press test button for 3 seconds
The screen will start to flash,
Press up twice, 30 will appear
Press set (grey) 3011 will appear Press set (grey), 0 will appear Press up once 1 will appear
Press set (grey) once 3011 will appear press cancel delete 2 x to return to normal screen

IF E904 error shows the tank sensor is not connected



Starting the System in hot water mode



Press Hot water on off button to start the unit, top left button.

The unit speed is adjusted with the std, eco power button, set to middle position, 2 dots showing.

Set the desired temperature 48C using the up and down buttons. This can ONLY be set if the Heating function is switched OFF and HW is on

NOTE when the unit is heating the tank this coke can symbol shows on the controller.

After 20 mins of operation if the tank temperature is not reached the immersion heater will start to help out. This time can be adjusted using setting 3032

Press the blue view button you can see 4 sensor readings, press it until the tap symbol shows.
This is the tank temperature. It will display for about 10 seconds. Check the temperature is not fluctuating more than 1C in this time. If it is the sensor is not installed correctly or is damaged. If this happens the system WILL NOT WORK PROPERLEY

Run test in hot water mode

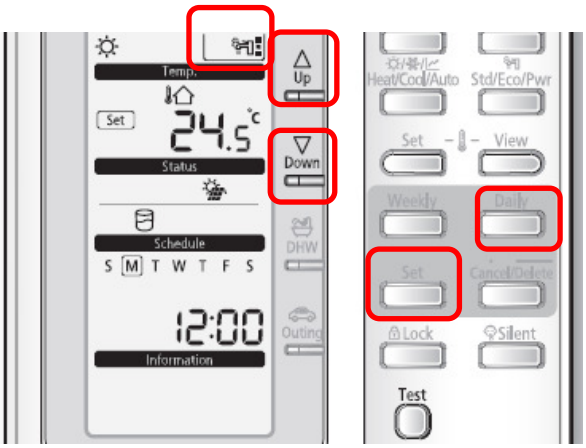
In hot water mode check that the 3 port valve or the 2 x 2 ports are sending water into the hot water cylinder, if not check the wiring.
Using the check button (blue) on the remote controller check the hot water cylinder temperature and note it down, the hot water temperature is displayed when the tap symbol shows.
After 15 minutes of running check the hot water temperature again, it should have risen, again note the temperature.
If the temperature has not raised check the temperature sensors is installed properly and again check the operation of the 3 port or 2 port valves. If the unit is running well it should heat the cylinder to 48C without needing the immersion heater

Setting up the tank immersion heater

The Gledhill tank has an immersion heater with its own stat; this MUST be set to 70C. This is to avoid the immersion heater cutting out before the legionella function is complete

Tank timer

To avoid the tank heating being switched off we always add 2 on timers a day one at 3-00 am and one at 15-00 pm.
Press daily button once, no 1 and on shows, press set (grey), press up or down until the tap symbol shows at the top of the screen with 2 dots press set, adjust hours with up or down button to 3 am press set, minutes flash press set. Now everything flashes press set (grey). No 2 appears do the same again but for 15-00.
After everything is set no 3 will show.
Press cancel delete twice, the normal screen will show. Daily will appear next to the time. The timer is active
To delete the timers press daily 2 x the set schedule will show, press and hold cancel delete for 5 seconds, keep doing this until no1 shows, press cancel delete 2 x and in the normal screen daily will have disappeared.



The hot water tank has priority over the heating, if the tank temperature falls 5 degrees below its set point the unit will automatically switch to heating the cylinder. Once set temperature is achieved the unit will go back to heating the house.
The hot water cylinder loses almost no heat (1/3 a degree an hour) if no hot water is used.
The hot water cylinder takes less than an hour to heat up from cold. If you need hot water very fast the DHW button forces the unit to heat the water flat out, the unit will stay in this mode until you press the DHW button again
To protect from legionella the tank is heated to 60 degrees C once a week automatically.

Performance testing

With the unit running flat out measure the temperature of the air temperature as it enters the coil and the ambient temperature well away from the unit? They need to be the same for the unit to operate properly.

Not enough hot water.

The Water storage temperature is lower (48C) than a normal fossil fuel cylinder. It's important to check that any shower or bath mixers do not further reduce the water temperature. Using your thermometer check that the hot water comes out the tap at the same temperature it leaves the cylinder. If it doesn't you might need to make adjustments to taps mixers etc. DON'T raise the tank temperature to compensate.

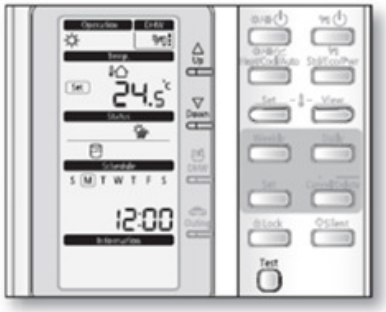
Field Settings

Many field settings will need to be made: NOTE the set button is the grey one not the blue

1. Press the **Test** button for 5 seconds.

   The mode changes to the field setting.

   In this mode, you can only use **Up**△, **Down**▽, **Set**, **Cancel/Delete** button.
   To cancel the setting, press **Cancel/Delete** button.



2. Set the Main Menu by pressing **Up**△ or **Down**▽ button.

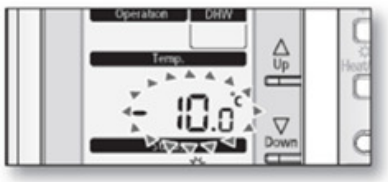
   The "Number" will blink. Set the Main menu and press **Set** button to save the setting.

3. Set the Sub Menu by pressing **Up**△ or **Down**▽ button.

   The "Number" will blink. Set the Sub menu by pressing **Up**△ or **Down**▽ button. Then press **Set** button to save the setting.

4. Set the Operation Range(Field Setting) by pressing **Up**△ or **Down**▽ button.

   The digits in "Temp" category will blink. Set the Field Setting Value by pressing **Up**△ or **Down**▽ button. Then press **Set** button to save the settings.



When finished or if you get lost press cancel delete 2 x to return to the normal screen

Note: if you set a field setting and go back to check it, it will not have changed, the field setting do not get written to the PCB until you finish setting and exit.

Field settings to set see user manual for a full list

1061	30s	length of time backlight is on in the Samsung rc
2011	-2	low ambient setting for optimisation set to -5 in Scotland
2012	+15	high ambient temp for optimisation
2021	45C	for u floor. Hi water temp for optimisation
2022	37C	lowest water temp for optimisation
2031	50C	for rads. Hi water temp for optimisation
2032	35C	lowest water temp for optimisation
2091	1	tells unit to use a u floor run signal
2092	1	tells unit to use an external room stat
3011	1	tells unit it has a tank connected
3025	50	mins, max tank heating time, make longer for big tanks i.e. 75 mins for 300L
3032	30	mins, delay time before immersion heater starts in tank mode
3042		Tuesday day legionella happens (always use Tuesday)
3043	3	am time it happens
3044	60	C legionella temp
3061	1	if a solar thermal system is installed

A full list of field settings are in the installation and user manual which come with the outdoor unit

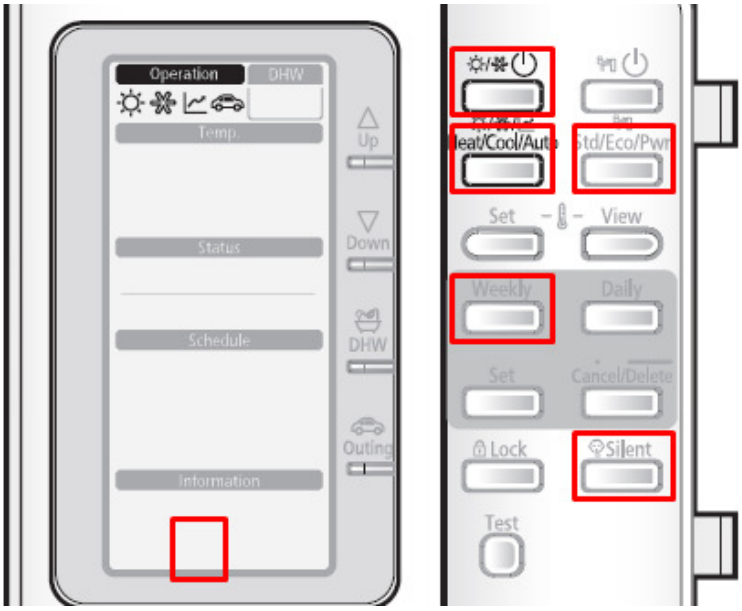
Operating the System in heating mode using an external thermostat and / or a boiler run signal from an under floor manifold.

You have now set the unit up to run from an external signal; the controller no longer drives the unit.
Using a field supplied room thermostat or signal from an under floor heating system. This is wired to the thermostat terminals for radiators wire from B20 – B24, for under floor heating wire to B20 - B22
When the contact is made the unit will start and the water temperature will be controlled by the boiler, you will not have any control over it. The water temperature is determined by the outdoor temperature; the colder it is outside the warmer the water.

You will see 0.0C on the screen; this shows the unit under external control using weather compensation function to work out the water temperature. You set this up in the field settings 2011 to 2031. If you need to boost the heating water temp this can be done by pressing the silver up and down buttons. This boosts the radiators by up to +5 C but warning this will cost more money to run.

The heat pump is operated using a signal from a room stat (field supply) or from the under floor heating manifold only. When you make a run signal a sun will appear in the screen of the RC, the pump will also start.

When an external stat or run signal is used most of the functions of the Samsung remote are disabled.
A waging finger shows at the bottom to show this.
All these buttons are disabled and the functions they control are also disabled



Note: when the heating command is sent to the unit it will not start for 3 minutes. And when the thermostat or signal is removed the pump will run on for up to 6 minutes.

Maintenance Monobloc systems

The Samsung heat pump should be maintained at least once a yea r to comply with warranty and RHI.

Maintenance procedure

Stop the unit, clean the strainer or magnetic filter in accordance with manufacturer's recommendations and replace it.

Test the concentration of the Anti-freeze (glycol) in the system using a Glycol tester the level should be 25%. If you don't have a glycol tester a Samsung glycol tester can be bought from your heat pump supplier or online.

Refill the unit, pressure should be 1 -2 bar,

We need to **test the operation of the unit** against the hot water cylinder. So first we need to draw off 20 liters of water, run a couple of taps for 5 mins to achieve this.

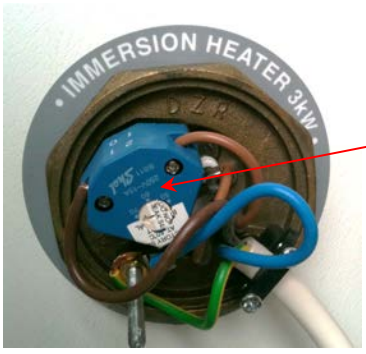
Test the unit as described on page 13 and 14

The unit should start up automatically in hot water mode, if it doesn't press the top right button on the controller, in 3-4 mins it will start heating the tank, a coke can symbol will show in the status section of the remote controller.

The heat pump should be able to achieve 48C cylinder temperature without using the immersion heater.

While running, check the coil on the heat pump for damage & debris, the coil needs washing we recommend you use Pro-universal heat pump cleaner, this is available online or from your heat pump supplier, one bottle will do up to 3 units. Instructions are given on the bottle.

Hot water Cylinder:



Check electrical connections & sensor are fixed properly and the overheat thermostat is set to 70C.

Overheat Thermostat Adjustment

Press the silver immersion button on the Samsung remote controller; this will force the immersion heater on. Check immersion heater works properly, Measure the current drawn by the heater; it should be 12-13 Amps.

Measure the temperature of the flow using the remote controller.

Measure the flow rate from the flow meter.

With the unit running flat out measure the temperature of the air as it enters the coil and the temperature of the air in the garden. They should be the same check cold air is not recirculating.

Leave this with the Homeowner

Your Samsung heat pump heats the house and hot water cylinder much like a normal fossil fuel boiler however there are a couple of differences which you should notice.

1 The radiator temperatures are lower than normal and will alter as the outdoor temperature changes. The colder it is outside the warmer the rads and vice versa. This function is automatic and is designed to save you money. At hottest they will reach 50C. If you would like a constant radiator temperature this can be set by an engineer but it will increase your run costs by up to 25%.

2 The system is designed to run continuously in cold weather, turning the system on and off will make the house uncomfortable and will increase your run costs. The most efficient way to run this heating system is to leave it running at the set temperature 24 hours a day in winter time. If you turn off the heating and let the house get cold (less than 17C) it will take a very long time to warm back up to a sensible temperature.

Your systems have been set up to be simple to operate.
The Samsung controller looks like this, you should not use this or press the buttons on it, it is for commissioning and making settings to the system only.

You should see 0.0C on the screen this means the unit is under external control from a room thermostat.

If the system goes in to fault, the screen will show a number at the bottom starting with E, for example E911 – A00
The engineer will want to know this number when you call him.

Heating

Control of the heating is by your wall mounted thermostat, not the Samsung controller; you need to read the instructions for this thermostat as its field supplied. The boiler will run when told too by the thermostat. DON'T set the room temperature too low, the heat pump takes time to recover the house temperature, as a rule don't set the temperature more than 2 degrees below your normal set temperature when you go out of the house or it will take a long time to recover.
To switch off the heating in summer set the temperature down to 16C to avoid the heating starting up.
To control the temperature in your rooms please use the radiator valves.

Hot water

Your system will keep the hot water cylinder hot at all times automatically, as you use the water the heat pump will constantly top up the cylinder. A cold cylinder should be reheated within an hour. An anti legionella operation will be completed at a predetermined time every Tuesday morning.

Warranty Important

Attached to this document is a warranty page your installer must fill in both sides and return it to activate the warranty. No claim will be processed without this paperwork being returned.

Samsung EHS Warranty
Unit 2 Warrior Park
Eagle Close
Chandlers Ford
SO534NF
Web site www.samsungehs.co.uk
Email sales@samsungehs.co.uk

Warranty Registration Card

Please complete both sides of this warranty card and return it to activate the warranty

Installer Name and Address telephone number & contact name		**Installation Address**	
Where was the unit purchased:			
Date Installed		**Date of commissioning**	
Heat Pump Model No		**Serial No**	
Hot water Cylinder installed	Yes/no	**Cylinder make and model no**	
Warranty period	Standard 3 years	**Optional extended warranty**	Extended 7 years

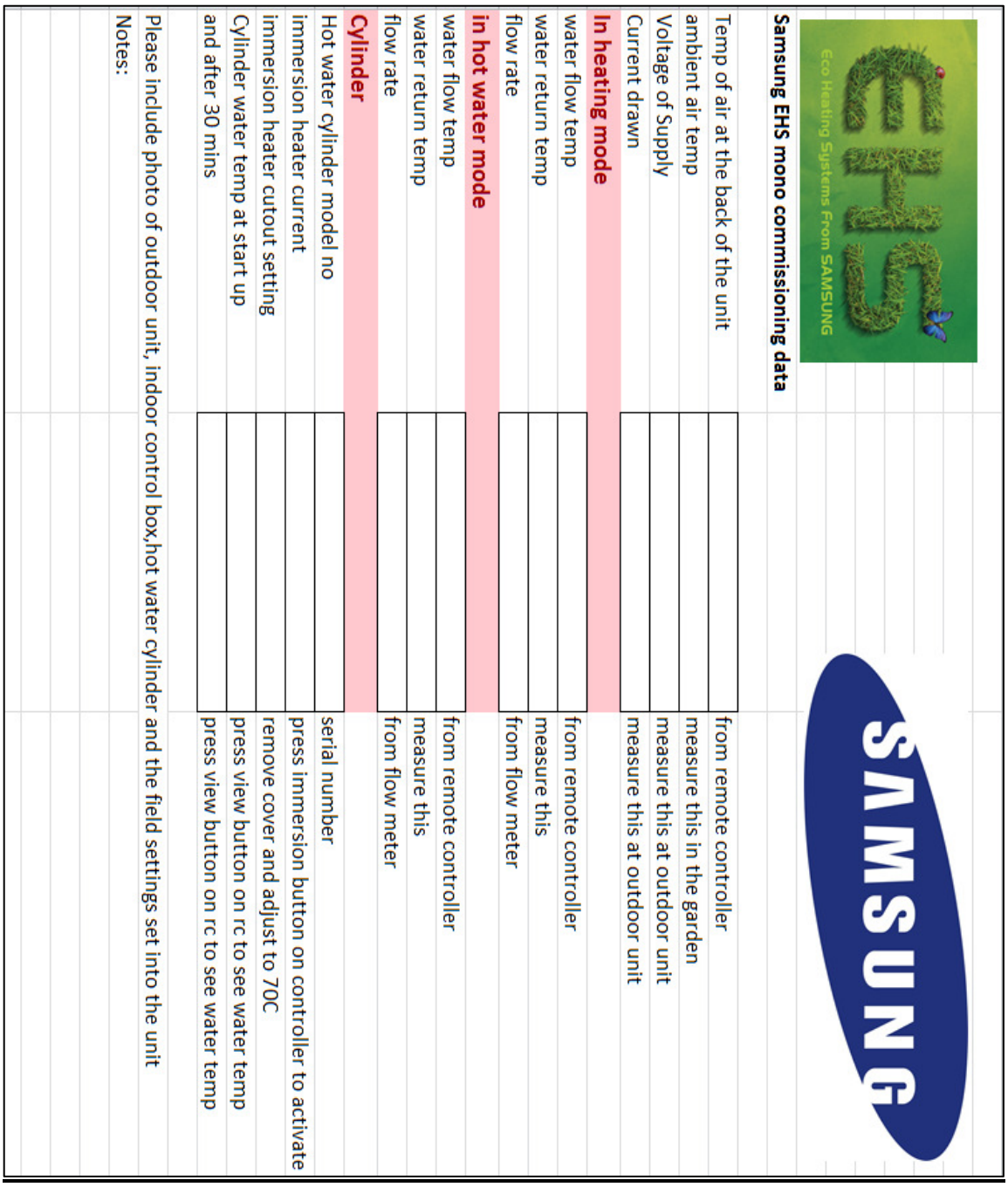
Please sign below and return to our Warranty Dept. via fax 08458430122, email sales@samsungehs.co.uk or post to the address above. Once received and if accepted we will then arrange for the replacement component(s) to be despatched.

Signature _____ **Date** _____

Samsung EHS Warranty
Unit 2 Warrior Park
Eagle Close
Chandlers Ford
SO534NF
Web site www.samsungehs.co.uk
Email sales@samsungehs.co.uk

Warranty Registration Card

Please complete both sides of this warranty card and return it to activate the warranty



Samsung EHS mono commissioning data

Temp of air at the back of the unit	from remote controller
ambient air temp	measure this in the garden
Voltage of Supply	measure this at outdoor unit
Current drawn	measure this at outdoor unit
In heating mode	
water flow temp	from remote controller
water return temp	measure this
flow rate	from flow meter
in hot water mode	
water flow temp	from remote controller
water return temp	measure this
flow rate	from flow meter
Cylinder	
Hot water cylinder model no	serial number
immersion heater current	press immersion button on controller to activate
immersion heater cutout setting	remove cover and adjust to 70C
Cylinder water temp at start up	press view button on rc to see water temp
and after 30 mins	press view button on rc to see water temp

Please include photo of outdoor unit, indoor control box,hot water cylinder and the field settings set into the unit

Notes:

For terms and conditions of the warranty please refer to the warranty document at www.samsungehs.co.uk / information / downloads / technical downloads.